

What we claim is:

- 1) A camshaft for an engine, said camshaft comprising a support shaft carrying
in the region of one end thereof a camshaft element for co-rotation
therewith, said camshaft element being captured on said support shaft by
5 the head of a rivet formed from plastic deformation of said end of said
support shaft.
- 2) A camshaft according to claim 1, wherein said support shaft includes a
hollow portion extending inwardly from said end.
- 3) A camshaft according to claim 2, wherein said support shaft comprises a
10 tube.
- 4) A camshaft according to claim 1, wherein said rivet comprises a radially
extending eyelet rivet.
- 5) A camshaft according to claim 1, wherein said rivet head is formed by
means of a radial cold flow forming technique.
- 15 6) A camshaft according to claim 5, wherein said radial cold flow forming
technique comprises an orbital riveting technique.
- 7) A camshaft according to claim 6, wherein said orbital riveting technique
comprises a daisy riveting technique.
- 8) A camshaft according to claim 1, wherein said rivet head is formed from a
20 deformation zone of said support shaft, which deformation zone overhangs
said camshaft element when said camshaft element is in place.
- 9) A camshaft according to claim 8, wherein said deformation zone includes, at
least before deformation, a hollow rim at said end.

- 10) A camshaft according to claim 1, wherein said camshaft element comprises a rotation sensor target member.
- 11) A camshaft according to claim 10, wherein said camshaft element comprises a substantially planar target member.
- 5 12) A camshaft according to claim 1, wherein said camshaft element comprises a drive member configured to transfer rotational drive to or from said camshaft.
- 13) A camshaft according to claim 1, wherein said camshaft element is formed from a sheet or plate material.
- 10 14) A camshaft according to claim 1, wherein said camshaft element is located on a journal at said end of said support shaft and is captured against a shoulder on said support shaft by said rivet head.
- 15) A method of producing a camshaft for an engine, the method including:
- 15 a) providing a support shaft having an end portion adapted to support a camshaft element;
- b) providing on said end portion a camshaft element for co-rotation with said support shaft; and
- 20 c) capturing said camshaft element onto said support shaft by plastically deforming a deformation zone of said end portion into a radially extending rivet head.
- 16) A method according to claim 15, including providing a hollow portion defined in said camshaft, said hollow portion extending inwardly through said end portion.
- 17) A method according to claim 15, including using a tube for said support shaft.
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- 18) A method according to claim 15, including riveting said shaft element onto said support shaft using a radial cold flow forming technique.
- 19) A method according to claim 18, including using, for said radial cold flow formation, an orbital or daisy riveting technique.
- 5 20) An engine including a camshaft, said camshaft comprising a support shaft carrying in the region of one end thereof a camshaft element for co-rotation therewith, said camshaft element being captured on said support shaft by the head of a rivet formed from plastic deformation of said end of said support shaft.